



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/895,198

07/02/2001

K. Paul Muller

YO999-247DIV

1509

29154 7590 10/07/2008

FREDERICK W. GIBB, III

Gibb & Rahman, LLC

2568-A RIVA ROAD

SUITE 304

ANNAPOLIS, MD 21401

EXAMINER

TRINH, HOA B

ART UNIT

PAPER NUMBER

2893

MAIL DATE

DELIVERY MODE

10/07/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/895,198	<b>Applicant(s)</b> MULLER ET AL.	
	<b>Examiner</b> HOA B. TRINH	<b>Art Unit</b> 2893	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 30-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Objections*

1. Claim 30 is objected to because of the following informalities: In line 4, "said borders" lack antecedent basis. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 30-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker (5,662,768; reference of record cited on 04/12/2002).

**As to claim 30**, Rostoker discloses an IC structure comprising a substrate 4 (fig. 1f) having an upper surface, wherein said substrate 4 comprises a substrate material 4; an opening (trench, fig. 1f) in the substrate 4 defined by said substrate material 4, wherein borders of the substrate material form a first rectangular portion and a second rectangular portion, wherein the second rectangular portion has a larger dimensions in a horizontal direction than the first and third rectangular portions, wherein said horizontal direction is between sidewalls of said first rectangular portion and said second rectangular portion, wherein said sidewalls are perpendicular to said upper surface; and a conductor 32 (figs. 1f, 3) filling the opening (trench, figs. 1f, 3). See marked-up figure 1f below.

Note, regarding to the rectangular portions and the dimensions, it has been held that where the general conditions of the claims are disclosed in the prior art, a change in thickness, size, or shape without a significant function is not inventive to discover the optimum or workable range by routine experimentation. See In re Aller, 220 F.2d 454, 105 USPQ 233,235 (CCPA 1955).

**As to claims 31, 41**, the second rectangular is deeper in the opening (trench; fig. 1f) than the first rectangular portion (fig. 1f). See marked-up figure 1f below.

**As to claims 32, 42**, the first rectangular portion is deeper than the second rectangular portion. See marked-up figure 1f below.

**As to claims 33, 43**, the second rectangular portion increases a surface area of said opening (trench). See marked-up figure 1f below.

**As to claims 34, 44**, the second rectangular portion inherently increases a capacitance of the structure. See marked-up figure 1f below.

**As to claim 35**, Rostoker discloses an IC structure comprising a substrate 4 (fig. 1f) having an upper surface, wherein said substrate 4 comprises a substrate material 4; an opening (trench, fig. 1f) in the substrate 4 defined by said substrate material 4, wherein borders of the substrate material form a first rectangular portion, a second rectangular portion and a third rectangular portion, wherein the second rectangular portion has a larger dimensions in a horizontal direction than the first and third rectangular portions, wherein said horizontal direction is between sidewalls of said first rectangular portion and said second rectangular portion, wherein said sidewalls are perpendicular to said

upper surface; and a conductor 32 (figs. 1f, 3) filling the opening (trench, figs. 1f, 3). See marked-up figure 1f below.

Note, regarding to the rectangular portions and the dimensions, it has been held that where the general conditions of the claims are disclosed in the prior art, a change in thickness, size, or shape without a significant function is not inventive to discover the optimum or workable range by routine experimentation. See In re Aller, 220 F.2d 454, 105 USPQ 233,235 (CCPA 1955).

**As to claim 36**, said second rectangular portion is between said first rectangular portion and said third rectangular portion. See marked-up figure 1f below.

**As to claim 37**, said first rectangular portion and said third rectangular portion have substantially similar dimensions. See marked-up figure 1f below.

**As to claim 38**, said second rectangular portion increases increase a surface area of said structure. See marked-up figure 1f below.

**As to claim 39**, the first rectangular portion and the third rectangular portion have different dimensions (fig. 1f) in said horizontal direction. See marked-up figure 1f below.

**As to claim 40**, Rostoker discloses an IC structure comprising a substrate 4 (fig. 1f) having an upper surface, wherein said substrate 4 comprises a substrate material 4; a bottled shaped opening (trench, fig. 1f) in the substrate 4 defined by said substrate material 4, wherein borders of the substrate material form a first rectangular portion and a second rectangular portion, wherein the second rectangular portion has a larger dimensions in a horizontal direction than the first and third rectangular portions, wherein

said horizontal direction is between sidewalls of said first rectangular portion and said second rectangular portion, wherein said sidewalls are perpendicular to said upper surface; and a conductor 32 (figs. 1f, 3) filling the opening (trench, figs. 1f, 3). See marked-up figure 1f below.

Note, regarding to the rectangular portions and the dimensions, it has been held that where the general conditions of the claims are disclosed in the prior art, a change in thickness, size, or shape without a significant function is not inventive to discover the optimum or workable range by routine experimentation. See In re Aller, 220 F.2d 454, 105 USPQ 233,235 (CCPA 1955).

U.S. Patent

Sep. 2, 1997

Sheet 2 of 4

5,662,768

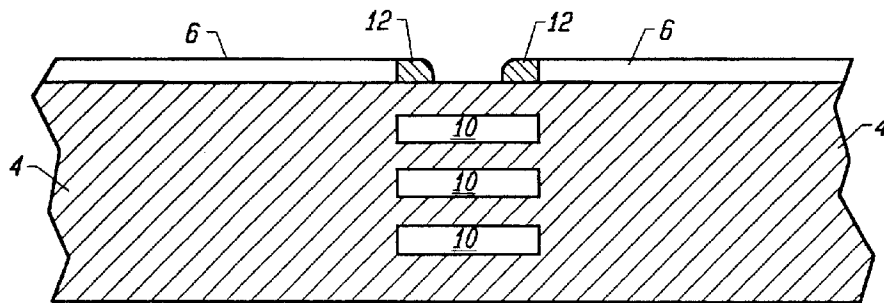


FIG. 1d

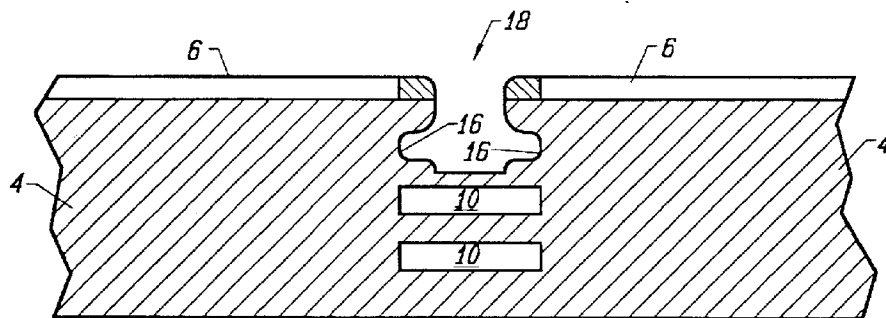


FIG. 1e

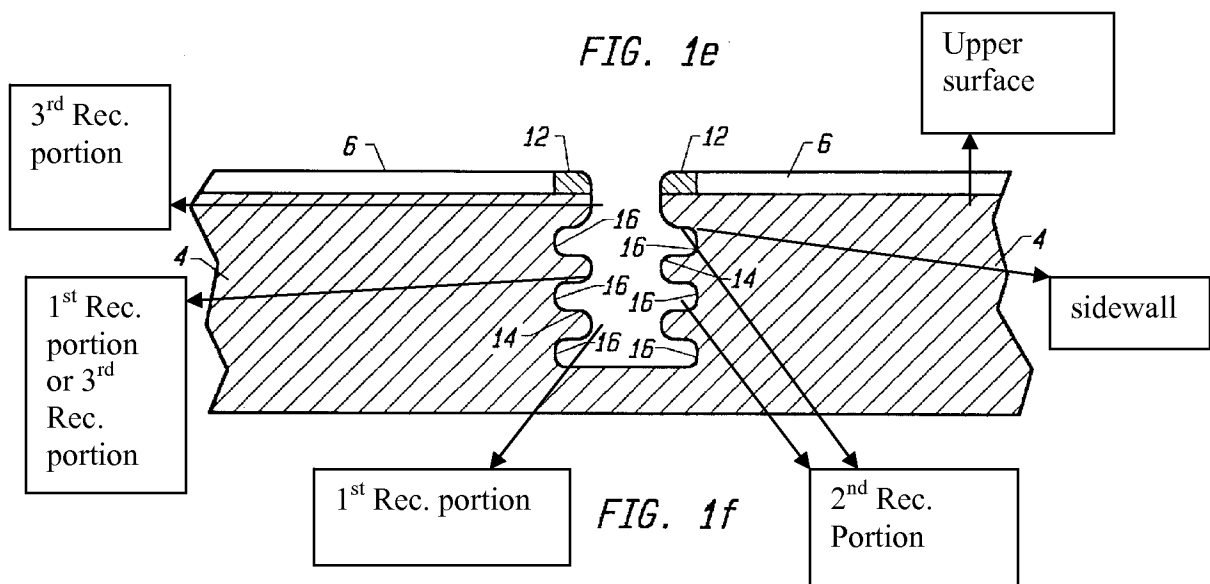


FIG. 1f

***Response to Arguments***

4. Applicant's arguments with respect to the newly amended pending claims 30-44 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



Any inquiry concerning this communication or earlier communications from the Examiner should be directed to (Vikki) Hoa B. Trinh whose telephone number is (571) 272-1719. The Examiner can normally be reached from Monday-Friday, 9:00 AM - 5:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Ms. Davienne Monbleau, can be reached at (571) 272-1945. The office fax number is 571-273-8300.

Any request for information regarding to the **status** of an application may be obtained from the **Patent Application Information Retrieval (PAIR) system**. Also, status information for published applications may be obtained from either Private PAIR or Public Pair. In addition, status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. If you have questions pertaining to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Lastly, paper copies of cited U.S. patents and U.S. patent application publications have ceased to be mailed to applicants with Office actions since June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov)), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy.

Art Unit: 2893

Requests to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.

/(Vikki) Hoa B Trinh/

Examiner, Art Unit 2893